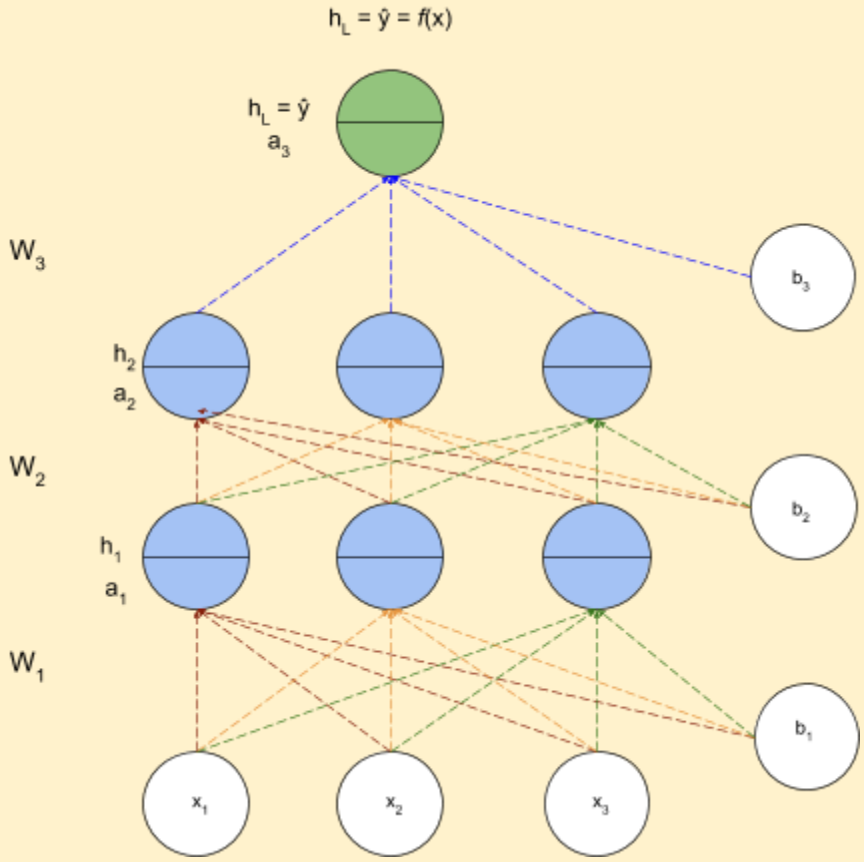
PadhAI: Deep Neural Networks

One Fourth Labs

Learning Algorithm (Non-Math version)

Can we use the same Gradient Descent algorithm as before

1. We will be looking at the non-math version of the learning algorithm
2. Consider the following Neural Network



3. The algorithm
   a. **Initialise:** $w_{111}, w_{112}, \ldots w_{313}, b_1, b_2, b_3$ randomly
   b. **Iterate over data**
      i. Compute $\hat{y}$
      ii. Compute L(w,b) Cross-entropy loss function
      iii. $w_{111} = w_{111} - \eta \Delta w_{111}$
      iv. $w_{112} = w_{112} - \eta \Delta w_{112}$
      ...
      v. $w_{313} = w_{111} - \eta \Delta w_{313}$
      vi. $b_i = b_i + \eta \Delta b_i$
      vii. Pytorch/Tensorflow have functions to compute $\frac{\delta l}{\delta w}$ *and* $\frac{\delta l}{\delta b}$
   c. **Till satisfied**
      i. Number of epochs is reached (ie 1000 passes/epochs)
      ii. Continue till Loss < ε (some defined value)